Space Weather Forecast

Issued on Wednesday, 26 October 2022 at 00:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor (R1) Radio Blackouts throughout. Minor Geomagnetic Storms possible on day 3 (28 Oct).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity over the past 24 hours has been Low, with two common-class flares from a new active region that has rotated across the northeast limb onto the visible side of the solar disc in recent hours. There are currently four other regions on the visible disc and they are relatively simple and currently benign. No Earth-directed coronal mass ejections have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of a waning high speed stream related to a negative coronal hole positioned in the southwest and near the limb. Solar winds declined from slightly elevated to Low levels by 25/1800 UTC. Total magnetic field strength was weak, with the north-south component varying between positively weak and negatively weak. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to mainly Low with an increasing chance of isolated Moderate-class flares. This risk comes from the new region of sunspots near the northeast limb.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections have been observed. The Earth is expected to continue experiencing Low levels of solar wind Either later on day 2 (27 Oct) or during day 3 (28 Oct) the Earth is anticipated to connects with the high speed stream related to another coronal hole. Geomagnetic activity starting Quiet with isolated Unsettled intervals days 1 and 2 (26 and 27 Oct). By day 3 (28 Oct) there is an increasing chance of Active or Minor Storm intervals, as the Earth connects with the high speed stream.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	40	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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